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Total Suspended Solids Laboratory Testing Procedure

1. Particle Size Distribution
2. Full Scale Laboratory Testing Requirements
3. Measuring Treatment Efficiency

1. Particle Size Distribution:

The following particle size distribution will be utilized to evaluate a manufactured treatment system. A natural/commercial soil representing U.S.D.A. definition of a sandy loam material. This hypothetical distribution was selected as it represents the various particles that would be associated with typical stormwater runoff.

Specifically, the following distribution can be utilized:

Particle Size (microns)	Sandy loam (percent by mass)
500-1000 (coarse sand)	5.0
250-500 (medium sand)	5.0
100-250 (fine sand)	30.0
50-100 (very fine sand)	15.0
2-50 (silt)	40.0
1-2 (clay)	5.0

Note: recommended density of particles- 2.65 g/cm3

2. Full Scale Lab Test Requirements:
   A. At a minimum, complete a total of 15 test runs. 3 tests each at a constant flow rate of 25, 50, 75, 100, and 125 percent of the hydraulic operating rate.
   B. The 3 tests for each operating rate will be conducted for influent concentrations of 100, 200, and 300 mg/L.
   C. Complete another series of tests at the above operating rates (1 test per rate) for an on-line system to check for TSS resuspension and washout. These tests should be operated with a initial sediment loading of 50% of the unit's capture capacity.

3. Measuring Treatment Efficiency:
   A. Calculate the individual removal efficiency for the 15 test runs.
   B. Average the three test runs for each operating rate.
   C. The average percent removal efficiency will then be multiplied by a specified weight factor (see table below) for that particular operating rate.
   D. The results of the 5 numbers will then be summed to obtain the theoretical annual TSS load removal efficiency of the system.

Operating rate	Weight factor	Rainfall range (in.)
25%	.25	.09 - .50
50%	.30	.50 – 1.00
75%	.20	1.00 – 1.50
100%	.15	1.50 – 2.00
125%	.10	2.00 – 2.50

Note:

Weight factors were based upon the average annual distribution of runoff volumes in New Jersey and the assumed similarity with the distribution of runoff peaks. This runoff volume distribution was based upon accepted computation methods for small storm hydrology and a statistical analysis of 52 years of daily rainfall data at 92 rainfall gages.